1878. Electric Light (NS-78-005)

Numbered pages 1-6, relating to electric engines, precede all other notes and drawings. These pages were copied into Experimental Researches, Vol. 6, pages 1-4. This folder also contains draft sketches for electric light caveats, some of which were copied into Experimental Researches, Vol. 5, pages 69-86.

Original Drawings

Electric Engine

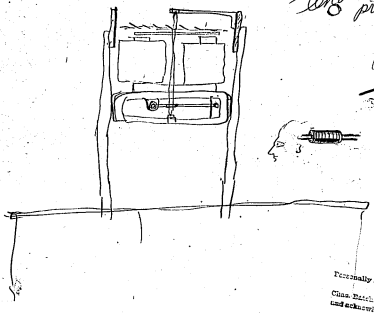
For Lamp. Sept 1878

Wm Carman

T A Edison

Chas. Batchelor
witness to Sept 20 1881

Jno. Force



Personally appeared b[illegible]
[illegible] 12
Chas. Batchelor, J[illegible] Force, and [illegible]
and acknowledged the above to be their signatures

Notary Public.

Electric Engy for Steam

Copied on Page 1 Vol 6 Exp. Record No 3

(13)

(2)

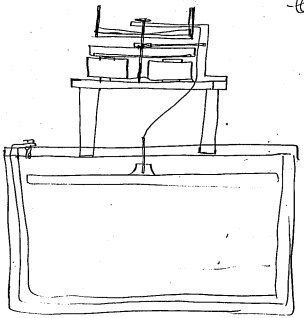
Electric Camp Sept. 8th 1828

J Hunter 2

Chas Batchelor

J A Edison

Martin Force



Personally appeared before me
Chas Batchelor, J. A. Edison, Martin Force
and acknowledged the execution of the within

Notary Public.

Received on Page 1 of 6 Ext Records
Oct 15. 1878

3

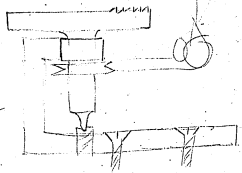
T A Edison

Miscellaneous
Aug 29 1878

T A Edison
J Kruesi
Chas Batchelor
Martin Force
Lund Funnell

Copied on page 2 Vol 6 Ex Records
Oct 16, 1878
Returned

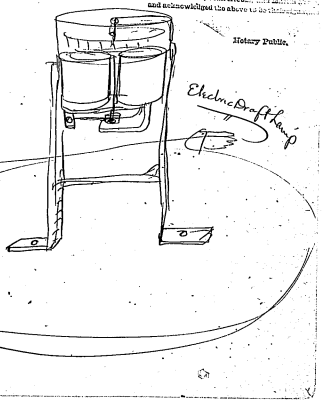
Borden



Personally appeared before me this [illegible] day of [illegible] 18[illegible] [illegible] and Chas. A. [illegible] Chas. Batchelor, John Kruesi, and Martin Force [illegible] and acknowledged the above to be their [illegible]

Notary Public.

Electric Draft lamp



battery for

Electric Engine for Lamp

Sept 9th 1879

Chas Batchelor

T. A. Edison

J. Kruesi

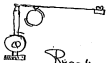
Martin Force

Copied on page 3-Vol-6 Exp Book-see Oct 16, 1879

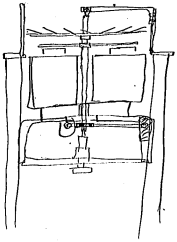
M. Cameron

Personally appeared before me this day of 18 , the said Chas. Batchelor, John Kruesi, and Martin Force and acknowledged the above to be their signatures.

Notary Public.



Break



Royalty

Royalty

Electric Engine for Camp Sept 21st 1878 5

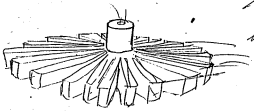
T A Edison

Chas Batchelor

J Kruesi

Martin Force

Mr Kruesi — Will you please make a Line for this battery that has all side surface something like this with no bottom surface hardly but all side surface



Batchelor

Personally appeared before me this day of 19 Chas. Batchelor, Jr. [illegible] and acknowledged the above to be their [illegible]

Notary Public.

X = internal resistance

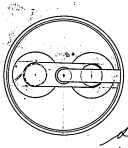
X + 1.44 ohm = 43.30 degree

X + 1.44 ohm + 1 ohm = 37.20

.2055 ohm

Copied on page 3 vol 6 Exp Record Book
Oct 16, 1878
Max Lamman

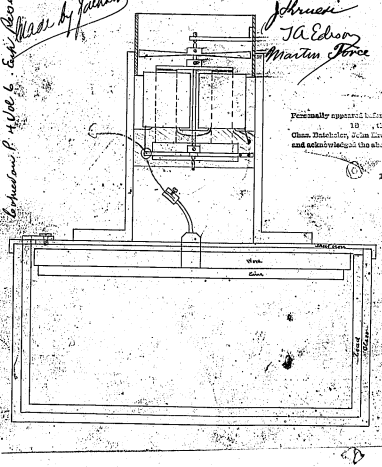
6



Dept of Elect

Electric Draft Lamp.

Chas Batchelor
J. Krusi
T. A. Edison
Martin Force



Personally appeared before me this day of 18 , the subscribers, A. T. Ellis, Chas. Batchelor, Adam Krusi and Martin Force, and acknowledged the above to be their voluntary

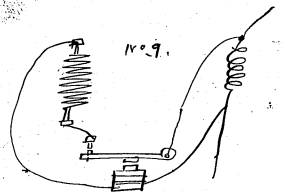
Notary Public.

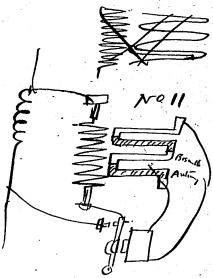
Witnesses P. Hyde b. Sub Pennoyer
Dec 16. 1879
A. Thompson
Filed by Jackson

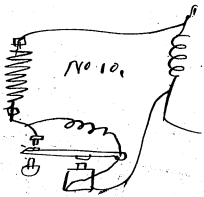
Sept 8. 1878.

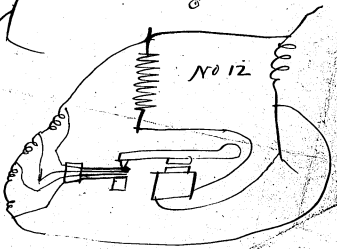
Electric Lamp

J. A. Gibson









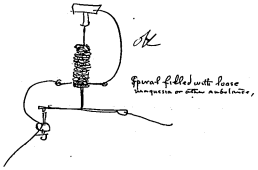
T. A. EDISON.

Sept 27 1878

Menlo Park, N. J., T A Edison 187

add, Electric Light Carbon

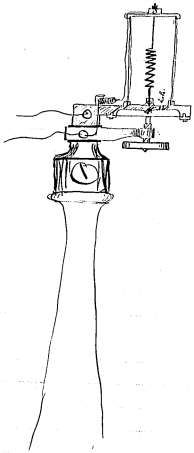
No. 3.



T. A. EDISON.

Carbon No 3

Menlo Park, N. J., Oct 1 1878



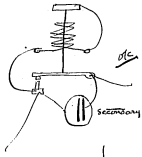
T. A. EDISON.

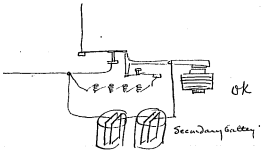
Caveat No. 3.

Electric light

Menlo Park, N. J., Oct 1 1878

T. A. Edison



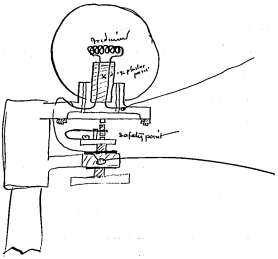


T. A. EDISON.

Caveat No. 3.

Menlo Park, N. J., Oct 1 1878

T. A. Edison



T. A. EDISON.

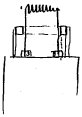
3rd Caveat

Menlo Park, N. J., Oct 1 1878

T A Edison

Sprocks.

Safety Catch



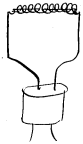
Safety Catch

T. A. EDISON.

3rd Caveat

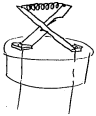
Menlo Park, N. J., Oct 1 1878

T A Edison

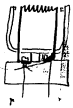


Safety catch,

do



Safety Catch



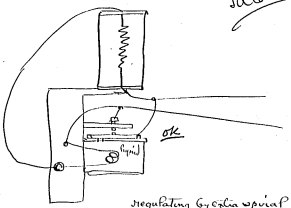
T. A. EDISON.

Electric Light

3rd Current

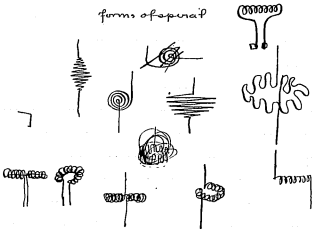
Menlo Park, N. J., Oct 1 1878

T. A. Edison



Regulating by coiling spiral in air or liquid.

forms of spiral



T. A. EDISON.

Current (1.05)

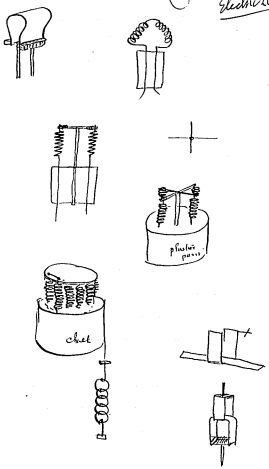
T. A. Edison

Oct 1, 78

Menlo Park, N. J., 187

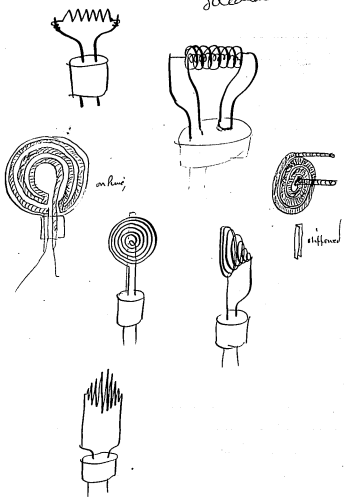
forms of spiral

Electric Light



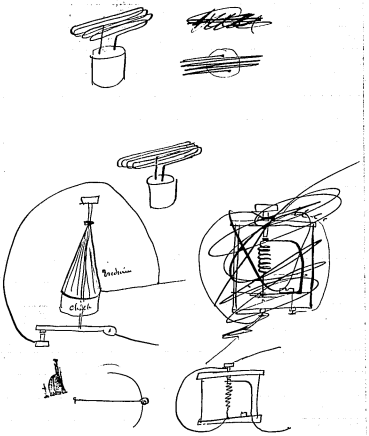
T. A. EDISON.

Caveat No 3
Oct 1
Menlo Park, N. J., 1878
T A Edison



T. A. EDISON.

Caveat No 3.
1878 Oct 3
Menlo Park, N. J., 187

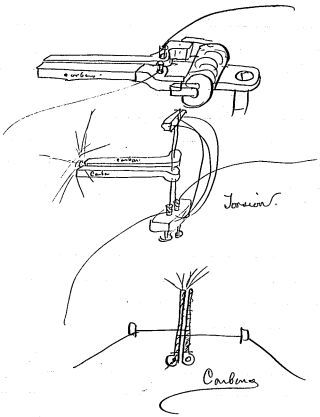


T. A. EDISON.

Caveat 4. Electric Light Sept

Menlo Park, N. J., Oct 3rd 1878

Ok as Patented



T. A. EDISON.

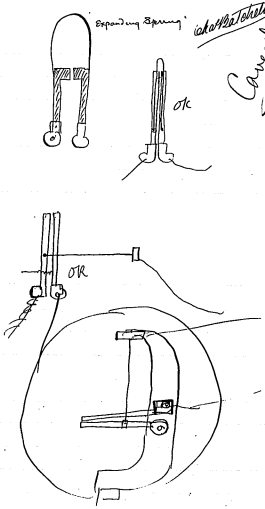
Electric Light Carbon 78

Menlo Ind. Oct 3 1878

Expanding Spring

ok as Patented

Caveat 4



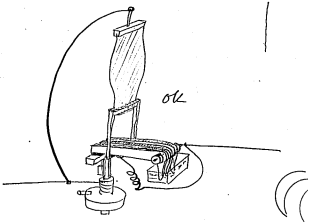
T. A. EDISON.

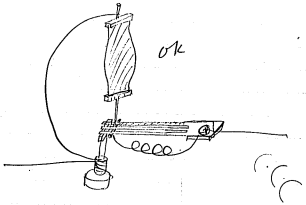
Caveat 4

Jae. Electric Light

Menlo Park, N. J., Oct 3 1878

Chas Batchelor



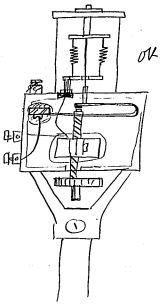


T. A. EDISON.

Caveat No 4 No 1

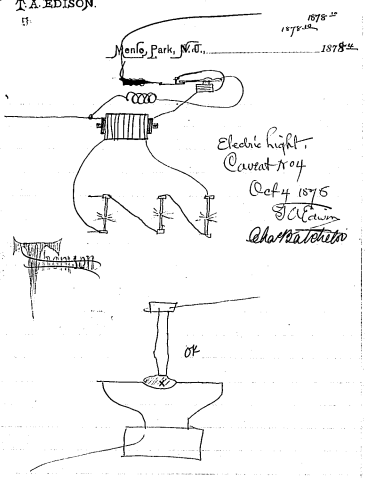
Menlo Park, N. J., Oct 3rd 1878

Chas Batchelor



T. A. EDISON.

Menlo Park, N. J., 1878

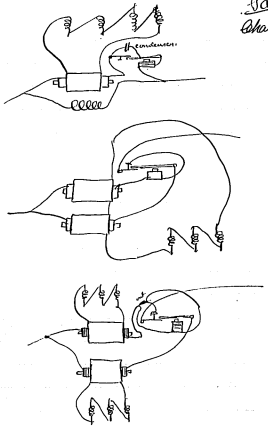


T. A. EDISON.

Electric light
Caveat No 4

Menlo Park, N. J., Oct 4 1878

TAE
Chas Batchelor



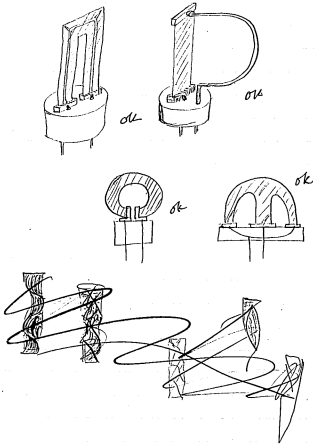
T. A. EDISON.

Caveat 4 Menlo Park, N. J., Oct 4 1878

Electric Leg 4

TAE

Chas Batchelor



T. A. EDISON.

T. A. Edison

Menlo Park, N. J., Oct 4 1878

Miscellaneous

Chas Batchelor

Stockton & Griffin

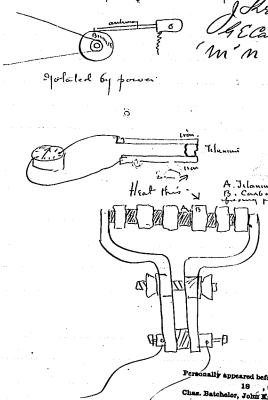
Thermo-pile worked by steam power

J. Krusi

A. Carman

'M' M Force

Rotated by power



Personally appeared before me this day of 18 , the said Thos. A. Edison, Chas. Batchelor, John Krusi, and Martin Force and acknowledged the above to be their signatures.

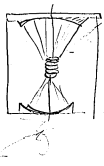
Notary Public.

T. A. EDISON.

Caveat No 4
Electric light

Menlo Park, N. J., Oct 5 1878

TAE
Chattelete



I propose to use reflectors on the bottom and top of the straight glass holders, or in the case of a globe place the incandescent conductor in the centre so it will be in the universal focus. Perhaps I can use something on the glass that will radiate well, thus throwing back the heat & allowing the light to pass through,

TA E

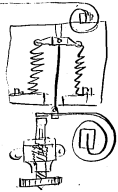
If Iridium wire is so unpure. I propose to use a cable composed of a number of exceedingly fine wires twisted together instead of a ~~heavy~~ single strand with the same amount of metal in the stranded cable

T. A. EDISON.

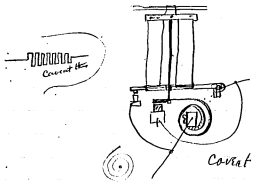
Electric light
Caveat No 4

Menlo Park, N. J., October 5 1878

Chattelete



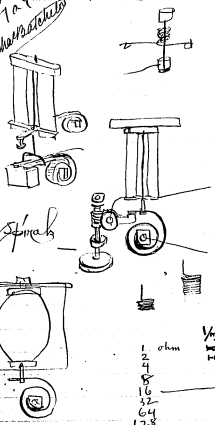
Cave



Caveat.

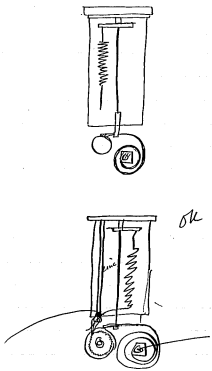
T. A. EDISON.

Electric Light
T. A. E.
Menlo Park, N. J., Oct 5 1878



T. A. EDISON.

Caveat
Menlo Park, N. J., Oct 6th 1878
Electric light T. A. Edison
Mention Light



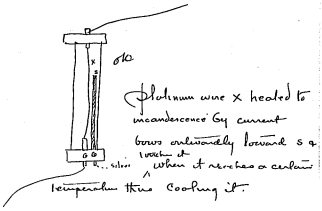
T. A. EDISON.

Caveat No. 4.

Menlo Park, N. J., Oct 8 1878

J. A. P.

Chas. Batchelor



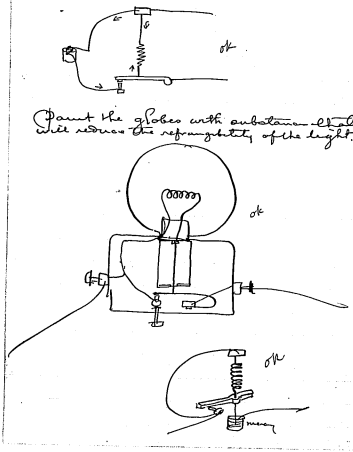
T. A. EDISON.

Caveat No. 4

Menlo Park, N. J., Oct 8 1878

J. A. Pearson

Chas. Batchelor

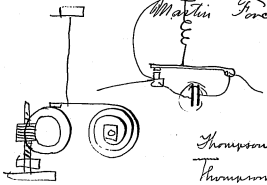


T. A. EDISON.

Menlo Park, N. J., Oct 8 1878

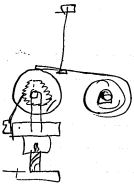
Chas Batchelor

Martin Force

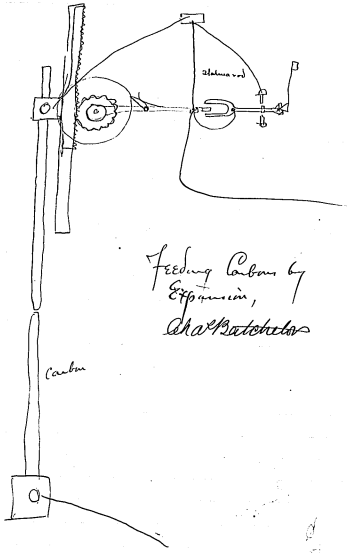


Thompson

Thompson



Concept No. 5
JAE
Oct 12 1898



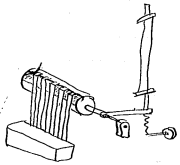
Feeding Carbon by Expansion,
Chas. Batchelor

T. A. EDISON.

Menlo Park, N. J., Oct 15 1878

Electric Light

Caveat No 5



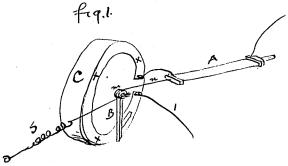
T. A. EDISON.

Electric Light

Menlo Park, N. J., Oct 15 1878

Caveat No 5

Fig. 1.

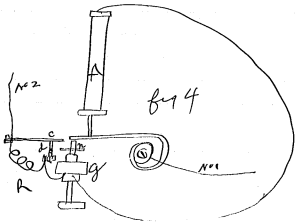


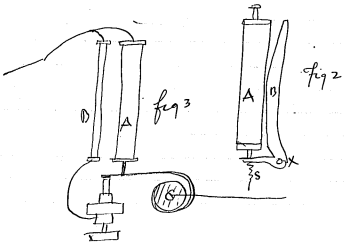
T. A. EDISON.

Electrical gold

Menlo Park, N. J., Oct 15 1878

Caveat No 5 T. A. Edison

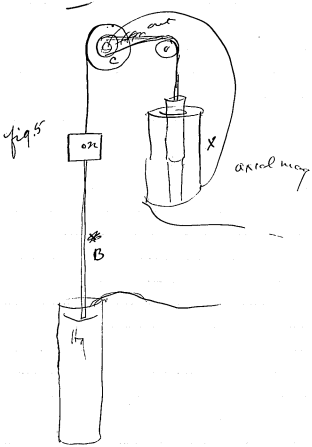




T. A. EDISON.

Menlo Park, N. J., Oct 15 1878

Caveat No 5 T. A. Edison



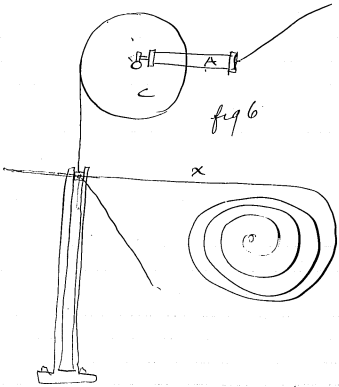
T. A. EDISON.

Caveat No 5 — Electric Light

Menlo Park, N. J., Oct 15 1878

T A Edison

Chas Batchelor

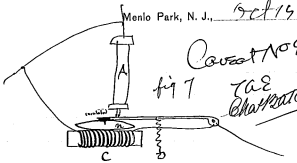


T. A. EDISON.

Electric Light

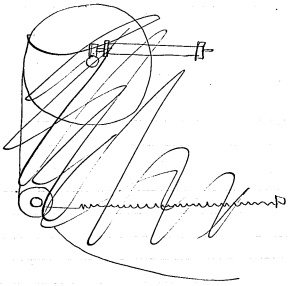
Menlo Park, N. J., Oct 15 1878

Caveat No 5



T A E

Chas Batchelor



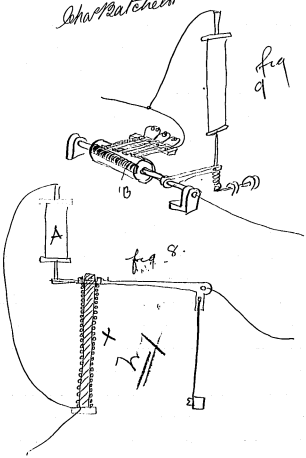
T. A. EDISON.

T A Edison Electric Light

Menlo Park, N. J., Oct 13 1876

Caveat No 5.

Chas Batchelor



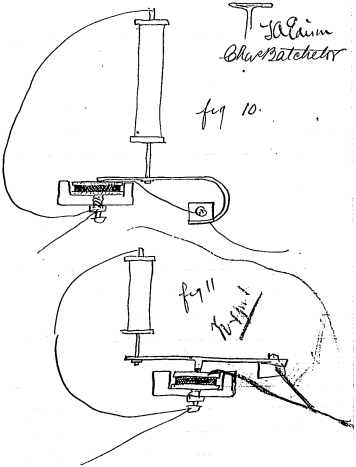
T. A. EDISON.

Electric Light

Menlo Park, N. J., Oct 15 1876

T A Edison

Chas Batchelor

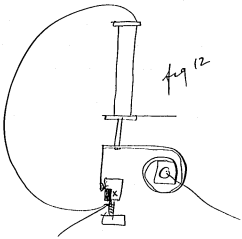


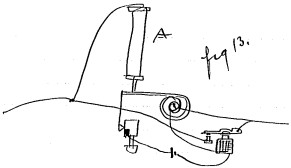
T. A. EDISON.

Menlo Park, N. J., Oct 15 1878

Electric Light Caveat No 5, T A Edison

Chas Batchelor





T. A. EDISON.

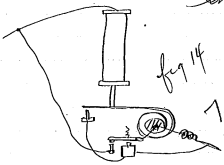
Caveat No 5

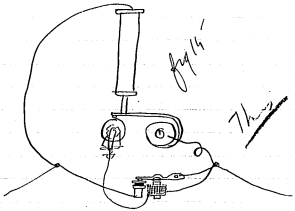
Menlo Park, N. J., Oct 15 1878

Electric Light

T A Edison

Chas Batchelor





T. A. EDISON.

Electric Light

Menlo Park, N. J., Oct 15 1878

Caveat No 5

T A Edison

Chas Batchelor

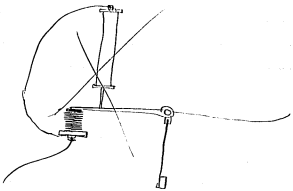
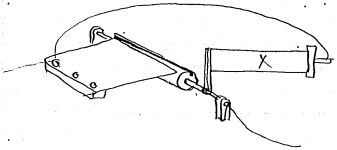


fig 16

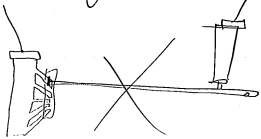


T. A. EDISON.

Caveat 5

Menlo Park, N. J., 187

Electric Light



Caveat No 5

T A E

Chas Batchelor

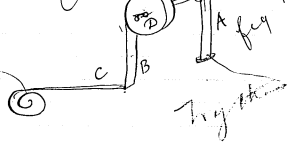


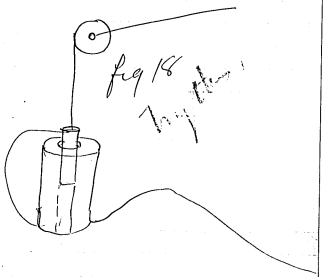
fig 19

T. A. EDISON.

T A Edison

Menlo Park, N. J., Oct 15 1878

Caveat No 5 Chas Batchelor

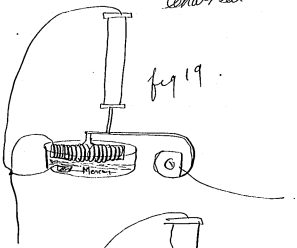


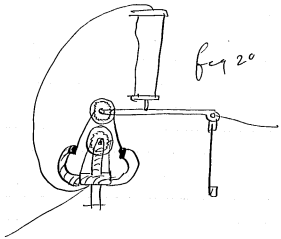
T. A. EDISON.

Menlo Park, N. J., Oct 15 1878

Caveat No 5 T A Edison

Chas Batchelor





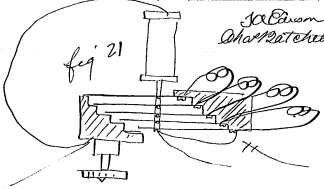
T. A. EDISON.

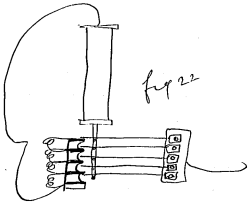
Caveat No 5 Electric Light

Menlo Park, N. J., Oct 15 1878

T A Edison

Chas Batchelor





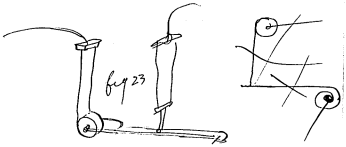
T. A. EDISON.

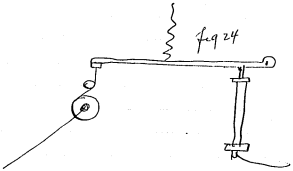
T A Edison Electric Light,

Menlo Park, N. J., Sept 15 1878

Caveat No 5

Chas Batchelor





T. A. EDISON.

Caveat 105 — T.A.E

Menlo Park, N. J., Oct 15 — 1878

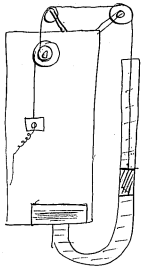


fig 24 —

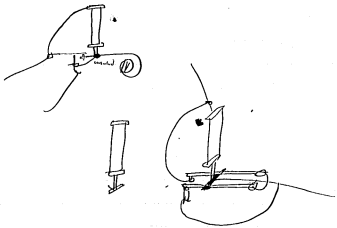
T. A. EDISON.

Electric Light —

TAE

Menlo Park, N. J., Oct. 6 1878

Caveat No 6

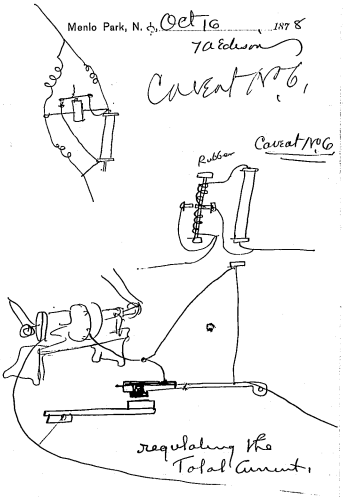


T. A. EDISON.

Menlo Park, N. J., Oct 16, 1878

T A Edison

Caveat No 6,

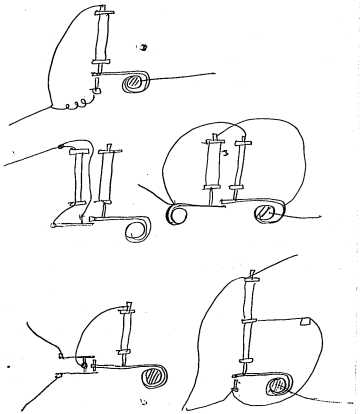


T. A. EDISON.

T A Edison

Menlo Park, N. J., Oct 16 1878

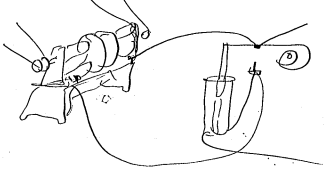
Caveat No 6,



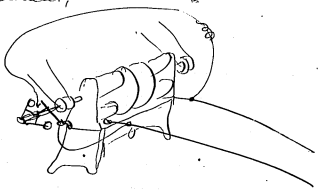
T. A. EDISON.

Caveat No. 6.

Menlo Park, N. J., TAE Oct. 17 1878



Regulating the total Current;



Regulating the speed of the magneto also of Current;

Electric Light Co. Oct 17. 1878

Thos A. Edison

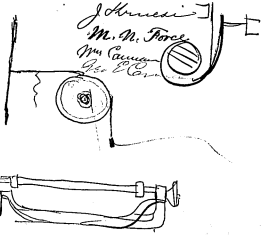
Chas Batchelor

J. Krusi

M. N. Force

Mr Pearson

Gas E. Co.



395
14
142
16

T. A. EDISON,
Menlo Park, N. J.

Page 16-17
Book ~~detail~~ Newark
July 28 1891

Maxim "Thermal" interference

T. A. EDISON.

Menlo Park, N. J., Oct 21. 1878 187

Thermal Relay —

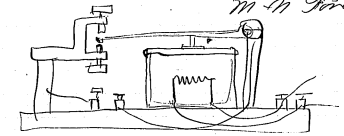
Chas. Batchelor
Witness

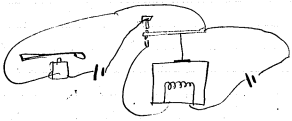
Chas. F. Edison
Witness

J. A. Brown

A. E. Carman

M. M. Price





T. A. EDISON.

Menlo Park, N. J., Oct 29 1878

Mr Ensi

Arrange a piece of sheet platina as thin as can be rolled, in the glass bulb and fix binding post with holes for largest wire on top and bottom it must be perfectly air tight same as at present

Chas Batchelor

T. A. EDISON.

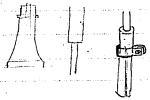
Menlo Park, N. J., Oct 23 1878

T A Edison

Mr Ensi

Make another like this sketch but with a platina ¼ inch wide and same thickness as ¼ flat, and coiled up with edges butting so but not lapping this must test same as ¼ sheet

R Batchelor
Johnson



Nov 2 1878

Calculation. T A Edison

Table

Jobolkoff	66 burners	
Edison	6	"
Jobolkoff	1/40	of 8 burners
Edison	~~120~~ 6	"

100

120, times the gravitey,

14)1000,(66
90
100
90

66
1000

66
15
330
66
990

Edison 8 cents 10 hours

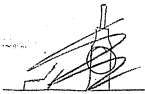
~~Wasn~~ Jobolkoff 32 Cents 10 hours,

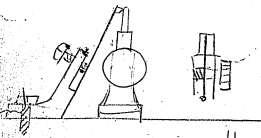
(12) Experiment: Edison, 24 burners, ~~for~~ 32 cents 10 hours
" Jobolkoff 66 " 32 Cents 10 hours.
showing to greater gravity of Edison & number of points getting round bar of magnet, say: 35. Edison
Equal. 1 Jobolkoff of 66 gas jets.

Make an Instrument as Nov 9th 1898

Chas. Batchelor

a stand for a piece of carbon
1/16 thick and 5 springs
round it all connected
~~[illegible]~~ to a tripod of
its own the carbon to
a tripod also





Batchelor

Chemist

M. A. Force

Thomas A. Edison's
Menlo Park N.J.

No 715-76

Electric Light

Copied
[illegible]

~~Elect Light~~ Nov 15 1878

Law -

With a given wire having 1 ohm resistance + certain length brought to a given degree temp. by given battery. It will when coiled in such a manner that but one quarter of its surface radiates its temperature will be increased 4 times or 1 - 4 battery will bring it to temperature of straight wire Or same battery ~~with 4 wires~~ in series will bring it to the same temp. as straight wire

Total resistance is 4 times as

This was actually determined by trial

The amount of heat lost by a body is in proportion to the radiating surface of that body. If one square inch of platina be heated to 100 deg it will ~~lose th~~ fall to say zero in one second whereas if it was at 200 deg it would require 2 second.

Hence in the case of incandescent conductors if the radiating surface be 12 inches and the temperature on each inch be 100 or 1200 for all, if it is so coiled or arranged that there is but 1/4 or 3 inches of radiating surface then the temperature on each inch will be 400. If reduced to 3/4 of an inch it will have on that 3/4 1600 deg tho' notwithstanding the original amount was but 12 because the radiation has been reduced

to 3/4 or 75 units ~~[illegible]~~ since the effect of the lessening of the radiation is to raise the temperature of each remaining inch not radiating to 125 deg =

If the radiating surface were reduced to 3/32 of an inch the temperature would reach 6400 deg fahr

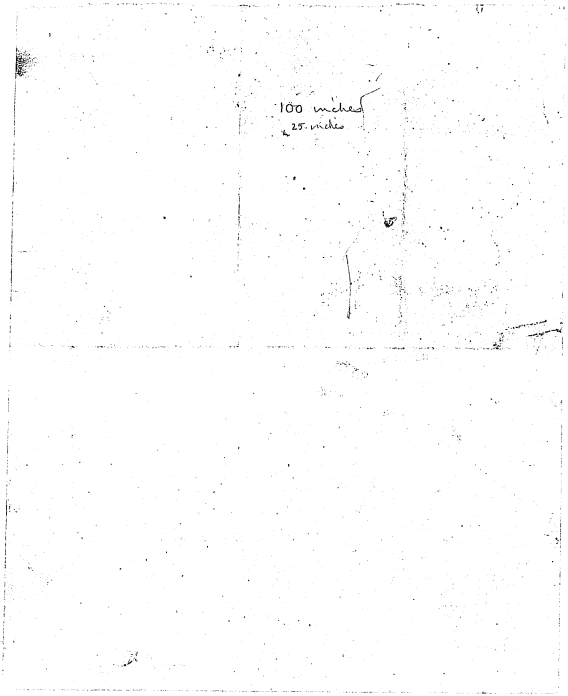
~~[illegible]~~ to carry out to the best advantage this law in regard to platina etc then with a given length of wire to quadruple the heat ~~[illegible]~~ we must lessen the radiating surface to 1/4. & to do this in a spiral 3/4 must be within the spiral & 1/4 outside for radiating = hence a square wire or other means such as a spiral within a spiral must be used.

These results account for the enormous temperature of the

Electric arc with one horse power as for instance of 1 hp will heat a ~~foot~~ 12 inches of wire to 1000 deg fahr. & this concentrated to hand 1/4 of the radiating surface it would reach a temperature of 4000 deg or sufficient to melt it but supposing it infusible the further concentration to 1/8 its surface ~~or 1/4 of it~~ it would reach a temperature of 16000 & to $\frac{1}{32}$ its surface which would be about the radiating surface of the Electric arc it would reach 64000 deg fahr. of course when light is radiated in great quantities ~~the~~ not quite these temperatures would be reached —

~~further~~

Another curious law is this ~~with~~ ~~If~~ it will require a greater initial battery to bring an iron wire of the same size and resistance to a given temperature than it will a platinum one, in proportion to their specific heats, and in the case of Carbon if a piece of Carbon 3 inches long 1/8 diameter with a resistance of 6 1 ohm, it will require ~~more~~ a greater battery power to bring it to a given temperature than it would a cylinder of thin platina foil of the same length diameter & resistance because the specific heat of Carbon is many times greater, besides If I am not mistaken the radiation of a roughened body for heat is greater than a polished one ~~and~~ like platina which may be polished,

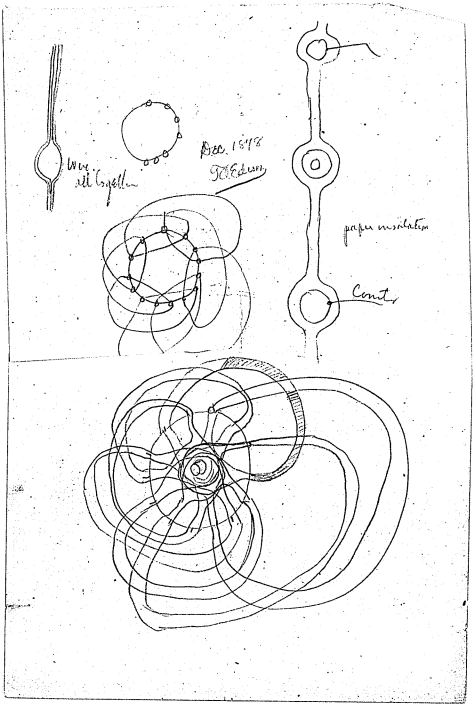

100 inches
25 inches

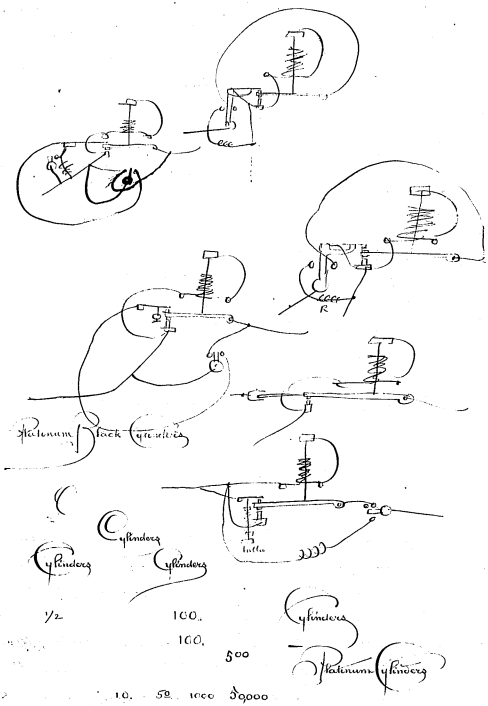
A gas jet equalling a Jobelkoff Candle when concentrated in the same space

A gas jet has — 10 square inches radiating surface, ~~in a gas jet~~ 15 candle p.
if reduced to 2½ " " 60
~~.062~~ .62 240.
~~.015~~ .015 960.

The latter radiating surface is about equal to the radiating surface of the arc, of a Jobelkoff Candle; hence an ordinary gas jet concentrated to the size of the Jobelkoff arc would give the same light, or in other words the same power which gives a gas jet of 15 Candle power will give 1000 by concentration,

If the radiating power or time of consumption is decreased up the gain in light is directly to the decrease. for instance if I could with platina coils obtain 4 burners of 15 C.p. each per h power. then by reducing the radiating power 50 per cent. I would obtain 8 burners —


Dec. 1648
Sodium
Const.


R
Platinum
Black
Cylinders
Cylinders
Cylinders
Cylinders
Cylinders
Platinum Cylinders
1/2
100.
100.
500
10.
52.
1000
50000

Alison Godillot desires that during the time asked for the justification of titles, the patents in question being submitted to the opinion of a French Engineer who will note all the ~~points~~ ~~on~~ formalities relative to those patents have been complied with, if they are not anticipated by others, and ~~se~~ ~~word~~ if there is no obstacle to the putting of them in exploitation in France ~~[illegible]~~

The parties have delayed this day ~~the~~ ~~convention~~ of agreement now to letter of pouvoir of consolidation only for the regular as after the justification of the titles of powers of Bailey & Perkins – the advice of the French Engineer, advice demanded by Godillot in the agreement of Bailey & Perkins.

Article 1st

Bailey & Perkins on the one part, Godillot on the other part agree that M Armengaud Jr. engineer living in Paris 19 Boul. de Strasbourg will be asked to give his advice on the patents in question in that which concerns the formalities relative to those patents in regard to all other similar patents having been taken & the possibility of putting these patents of Gray Edison & Bailey with the certainty of right in so doing

These titles cleared & advice got been favorable the delay of a month being the only delay the company will be formed legally & clauses stipulations & conditions as after